

REMARKS/ARGUMENTS

Allowable Subject Matter

Claims 25, 26 and 28 were objected to as being dependent upon a rejected base claim, but were indicated by the Examiner to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has complied with the above indicated directions , including the punctuation correction in claim 28, and claims 25, 26 and 28 are now believed to be in form for Allowance.

Claims Rejections - 35 USC § 102

Claims 1,3,4,6,7,9 and 11 were rejected under 35 U.S.C. 102(b) as being anticipated by Lechene (USP 3,351,387).

Claims 3, 9 and 11 have been canceled; their elements being largely incorporated in the amendments to claim 1.

Claims 1,4,6 and 7, as amended are presented for reconsideration and are believed allowable for the reasons stated below.

The inventions of claims 1,4,6 and 7 are illustrated in Figs. 5, 6,7,8,13,14,15,16 and 17.

Lechene teaches the combination of a rigid core member 53 made of wood or other solid rigid material and formed with a spiral groove 55 in the printer throughout the length of the broom device. Applicant, in contrast, in the form of the invention claimed in claims 1,4,6 and 7 requires no core; be it rigid or flexible.

Lechene further teaches that the bristle mat 44 must be attached to the grooves 55 in the core member 53 with a strong wire or cord.

Lechene's bristle mat 44 cannot stretch due to its mechanical connection to the core member 53 in shallow grooves 55 formed in the core member.

Applicant's helix-like coils on the other hand may stretch in an longitudinal direction.

Lechene's brush cannot be reduced in diameter so as to clean a tubular work piece which is smaller in diameter than the core member 53 due to the fact that the solid core member 53 cannot be reduced in size. In contrast, Applicant's helix-like coils are reduced in diameter as the cleaning device is 5 stretched either by pulling on both ends of the base member 2, or when the coils encounter a reduction in the diameter of the work piece, an obstruction or a bend in the work piece.

As stated in the amendments to claim 1, "the thermally set helix-like elongated coiled configuration is infinitely stretchable and bendable from a first 10 contracted coiled position to a second extended coiled position forming an infinitely varying diameter opening therethrough".

Further, applicant's base member in its helix-like coiled configuration has a characteristic of memory spring return from the second extended coiled position to the first contracted coiled position. Lechene in contrast, does not teach or 15 even suggest a cleaning device with such characteristics.

Lechene is a power driven street-sweeping broom for sweeping pavements. Lechene's street sweeping broom is totally unsuitable for cleaning musical instruments, or glass tubing.

Applicant's submit that with the current amendments, claims 1,4,6 and 20 7 no longer fall within a claim 35 USC §102 rejection and should be allowable.

Claim Rejections - 35 USC §103

The Examiner rejected claims 5 and 10 under 35 U.S.C. 103(a) as being unpatentable over Lechene (USP 3,351,387) in view of Hunt (USP 3,343,884).

25 Applicant has currently extensively amended claim 1 upon which both claims 5 and 10 depend. As amended, Applicants believe that the rejection has been overcome for the reasons set forth below.

Claim 5 Rejection under 35 U.S.C. §103(a)

30 With respect to claim 5, the Examiner cited Hunt for the proposition that the pitch of the spiral may be varied (see column 1, lines 52-55). Applicant

would also call the Examiner's attention to col. 2, lines 36 -40. Hunt has the capability of initially winding his elongated strip 13 at varying angles, but he does not teach or even suggest constructing a brush in which the helical angle of the coils actually varies during use of the brush.

5 As set forth in currently amended claim 1, Applicant calls for a brush in which the base member 2 is infinitely stretchable from a first contracted coiled position to a second extended coiled position therein causing an infinitely varying helical angle during the stretching. This inventive concept is graphically shown in Figure 7 of applicants drawings and described in paragraph 0073 at lines 18 -
10 26 of the specification.

Applicant, in presenting a brush which can change its helical angle during use and thereby vary the effective diameter of the brush is a brush of totally different construction and function from Lechene in view of Hunt.

Lechene cannot change the angle of his helix during use even though he
15 uses a material (Polypropylene) which is initially capable of changing the angle during construction of the brush. Of course, Lechene uses a wood core with grooves formed in the core to prevent changing of the helical angle.

Hunt's brush could theoretically change helical angles during use, but note Fig. 4 where he uses spacer strips 20 to prevent free sliding of the elongated
20 strip 13 on the core 10 during use.

It is submitted that by using cord 11 to hold the rubber or plastic strip 13 in place, Hunt intended that helical angle not change when the brush was used as he clearly explained at col. 3, lines 44 - 49 of the specification.

Finally, it is submitted that Hunt cannot reasonably modify his brush to
25 permit the helical angle to vary during use, because Hunt has no way of automatically returning the coils to their preset helical angle. The friction between his rubber strips 13 and his core member 10 would simply not permit a return of the coils to a preset angle.

In contrast, the brush identified in Applicant's claims 1 and 5 is not
30 formed with a core member, but instead uses a base material having a memory

reset, which automatically returns the coils of the base member 2 to their initial coiled position and initial configuration and helical angle.

Currently amended claim 5, which is dependent upon claim 1, calls for a cleaning device which goes totally beyond the brushes taught or suggested by 5 Lechene and Hunt.

Applicant, in claim 5 calls for a cleaning device that initially may be configured in which the helical angles of the coils selectively vary along its length. As the cleaning device of claim 5 is stretched in use the helical angles of the coils will vary from their selected initial position while other coils with a 10 different initial helical angle will also vary as the device is stretched. When the force stretching the cleaning device is removed, the coils will return to their initial selected helical angles.

Applicant indeed has disclosed a brush which is totally new in construction and Applicant submits that the cleaning device set forth in Claim 5 15 is allowable over Lechene and Hunt under 35 U.S.C. 103(a).

Claim 10 Rejection under 35 U.S.C. §103(a)

Claim 10 is a narrower version of Claim 5. Whereas claim 5 includes brushes in which the helical angle may, as for example, progressively or 20 abruptly change throughout its length, claim 5 calls for a cleaning device which is made up of portions of the brush which have different helical angles. The helical angle may initially vary within any one portion, or the helical angle may initially be the same throughout any one portion. Of course as stated above, as the cleaning device, is stretched, the helical angles will change in each 25 portion of the device.

Applicant is not claiming in either claim 5 or claim 10 that initial variation in helical angles when the brush is initially made is patentable per se. Rather, Applicant is claiming a brush, however initially constructed, which changes helical angles while in use, is patentable.

30 The reasons for applicant submitting that claim 10 is patentable are the same as set forth above in submitting that claim 5 is patentable.

Claim 8 Rejection under 35 U.S.C. §103(a)

5 Claim 8 was rejected under 35 U.S.C. §103(a) as being unpatentable over Lechene in view of Stebler (USP 1,454,191).

Applicant is not claiming that a brush initially made with varied length fibers is patentable per se. Applicant does submit that a brush initially made with different length fibers which stretches and further changes the effective 10 length of the initially different length fibers is new and patentable.

Applicant submits that claim 8 which is dependent on currently amended claim 1 should be allowable for the reasons set forth below.

Stebler which shows different length fibers also teaches that the different length fibers are affixed to a polygonal core 5 which in turn is affixed to a core 15 box 3 which in turn is mounted on a shaft 1.

In contrast, Applicant, in claim 8, which is dependent on claim 5, has none of the Stebler hardware just described.

Stebler's rotary brush does not stretch. Once Stebler's brush is constructed, each tuft of fibers scribes the identical circle as the brush rotates.

20 In contrast, Applicant's brush is not mounted on a core and although applicant does not teach a "rotary" brush, some minimal oscillating rotational motion inevitably takes place. In any event, the difference between Stebler's non stretchable rotary brush and Applicant's stretchable brush is that the effective diameter of a circle or more accurately "diameter of an arc of a circle" 25 varies as the length of the brush is alternately stretched and contracted as the brush is in operation. (Applicant's brush is more normally used in a "reciprocal sawing" motion rather than a rotary motion as taught by Stebler.)

In actual practice, Applicant's brush presents an infinitely greater variation of fiber length to a given work surface than Stebler ever imagined. As 30 Applicant's brush is stretched the effective lengths of all the fibers in the brush

are shortened. As Applicant's brush contracts, the effective lengths of the fibers lengthen.

Stebler, in contrast, in affixing different length fibers to a fixed core member was on the right track in presenting a brush with the advantages of 5 different length fibers striking a work surface. Stebler, however, fell far short of being able to conceive and build a brush which presented the infinite effective fiber lengths that Applicant's brush achieves.

Applicant achieved this infinite effective fiber length brush within a selected range by constructing a brush which stretches in the manner set forth 10 in claim 1 and with the initial fiber lengths set forth in claim 8.

Applicant submits that claim 8 describes a stretchable cleaning device without a core member which is patentably distinct in structure under 35 U.S.C. §103(a) over Lechene in view of Stebler and results in a cleaning device which achieves a far different function by presenting to a work surface an infinite 15 variety of fiber lengths far beyond the number of fiber lengths achieved by the Lechene/Stebler combination which has different length fibers spirally mounted on a fixed polygonal perimeter surface rotating on a shaft.

Claims 27, and 29 - 38 Rejection under 35 U.S.C. 103(a)

20 Claims 27, and 29 - 38 were rejected by the Examiner under 35 U.S. C. 103(a) as being unpatentable over Lechene.

Claim 27 Rejection under 35 U.S.C. 103(a)

Applicant submits that currently amended claim 27, which is dependent 25 upon currently amended claim 1, is allowable for the reasons set forth below.

A preferred embodiment which reads upon claim 27 as amended is set forth in Fig. 27 of the drawings.

Referring to Fig. 27, core member 678 is inserted through tubular member 580. The helix-like base member 702 is attached at one or more points to the 30 core member 678. In Figure 27, base member 702 is attached at two points ; viz. attachment point 88 and attachment point 89. One point of attachment

would be sufficient for the cleaning device to operate. Unidirectional movement of the cleaning device as indicated by arrows 382 and 383 works best if attachment is at two points as shown. Further description of the device illustrated in Fig. 27 is at paragraphs 0102 and 0103 in the specification at 5 pages 22 and 23.

Referring to Fig. 27, and as set forth in currently amended claim 27 at paragraph (b), elongated coiled flexible base member 702 has the "freedom to stretch and bend and slide along the flexible plastic core member 678 from all of the plastic core member connections points 88 and 89 and between all of the 10 plastic core member connections points 88 and 89."

In contrast, Lechene does not teach, suggest, or have a bristle mat 44 capable of stretching or bending between points of attachment. Further, if Lechene's bristle mat is not continuously attached throughout its length, Lechene has a failed brush.

15 Lechene has a non-flexible core as opposed to Applicant's flexible core. Lechene's non-flexible core cannot be inserted through a curved tube. Applicant's cleaning device is especially designed for cleaning curved tubes.

In summary, currently amended Applicant's claim 27 should be allowed.

20 Claim 29 rejection under 35 U.S.C. §103(a) in view of Lechene

Claim 29 as currently amended is dependent on currently amended claim 1 and should be allowed for the reasons set forth below.

The essence of claim 29 is that the base of the base member 102 is substantially continuously connected, as by bonding, to a portion of the plastic 25 core member 78 and the coils are so tightly wound about the plastic core member that the edges of the base member 102 are closely adjacent one another or even in touching contact with one another. This unique configuration creates a brush of unusual characteristics. First, the fiber elements are very close together, but just as importantly, the tightly wrapped and bonded coils of 30 the base member create a brush which is relative stiffer in the wrapped portion than in the handle portion which remains more flexible.

Lechene is distinguished by the amended claims in several respects. First, Lechene has no handle, but rather a stiff solid core member which is wrapped by a bristle mat 44 with wide spaces between the bristles along the entire length of the core.

- 5 Lechene's bristle mat is held mechanically to the core member 53 by a wire. Lechene derives little or no stiffening from loosely wrapping the bristle map around the core. Thus Lechene has no flexible handle portion and a relatively stiff coiled bristle portion. Instead, Lechene has a brush which has the same rigidity throughout its length.
- 10 There is no way that the Lechene wood core member can be inserted through a curved tube to be cleaned as shown in Fig. 14 of applicant's drawings.

In a form of the invention covered by amended claim 29, but with an end portion forming a blunt cone by cutting the fibers, Applicant has developed a brush with no metal parts which is surprisingly adept in cleaning automobile wheels constructed with spokes, spinner hubs, or cast web designs with multiple small openings and multiple angular intersections. The absence of metal allows the brush to clean without scratching the highly polished metal surfaces of the automobile wheels which become coated with brake lining dust or other

20 road dirt.

In summary, Applicant believes that claim 29 which describes a hand brush, is patentable over the machinery powered rotary street brush of Lechene.

Claims 30, 31 rejection under 35 U.S.C. §103(a) in view of Lechene

- 25 Referring to Fig. 27, Claims 30 and 31 are both based on claim 27 in which the base member 702 is only connected to the core member 678 at one or more connection points. Claim 30 defines a handle 579, and claim 31 calls for two handles.

Applicants is not claiming handles per se, but rather a combination brush as set forth in amended claim 27, which is dependent on amended claim 1, with one or two flexible handles. Applicant's handles are primarily used for

cleaning by sawing back and forth to wear down dirt, rust or other solid matter which has adhered to the inside of curved tubular members. Applicant's flexible handles make this cleaning method possible. Lechene has a solid inflexible core, and even assuming Lechene had handles, he could not clean the inside of 5 curved tubes such as are found in musical instruments or laboratory glass tubing.

In summary, Applicant submits that claims 30 and 31 should be allowed.

Claims 32 - 38 rejection under 35 U.S.C. §103(a) in view of Lechene

10 Claims 32 - 38 were rejected under 35 U.S.C. §103(a) in view of Lechene.

Claims 32 - 38 are all dependent on currently amended claim 27, which is dependent on amended claim 1, and should be allowed for the same reasons recited above with respect to claim 27.

15 Specifically, claim 32 refers to a cleaning device illustrated in Fig. 27. A flexible handle must be stiff enough to be inserted into and around curved tubes such as the one illustrated in Fig. 27.

Lechene with his rigid core has no ability to be inserted through a curved tube with a sharp bend or a bend as shown in Fig. 27.

20 Claim 33 should be allowed for the same reasons expressed with respect to Claim 32. Claim 33 covers cleaning devices like the one illustrated in Fig. 27, but with only one handle.

Claim 34 reads on a form of the invention illustrated in Figures 20 and 21. The form of the invention illustrated in Figures 20 and 21 has proven 25 particularly adaptable for cleaning tubes which are so long that it is impractical to design a brush which is as long as the tube to be cleaned. Applicant's brush is forced through the long tube with compressed air or a pressurized fluid.

Claim 34 is dependent on claim 27 and should be allowed for the reasons expressed above with respect to claim 27.

Claim 35 is limited to a cleaning device with fibers of relatively short length. Applicant is not claiming short length fibers per se, but rather the cleaning device defined in amended claim 27.

Claim 35 is believed allowable for the reasons set forth with respect to 5 claim 27.

Claim 36 is formed with relatively long fibers and is dependent on currently amended claim 27. Applicant is not claiming relatively long fibers per se, but rather a long fiber cleaning device in combination with the cleaning device of claim 27. Claim 36 is believed allowable for the reasons set forth in 10 respect to claim 27 above.

Claim 37 is not claiming rigid fibers per se but rather a cleaning device set forth in claim 27 in combination with the rigid fibers.

Claim 37 should be allowed for the reasons set forth in relation to Fig. 27.

Claim 38 is dependent on currently amended claim 27. Applicant is not 15 claiming relatively flexible fibers per se but rather such a cleaning device in combination with the elements of claim 27. Again, claim 38 demonstrates the great number of different brushes that can be formed using the characteristics of the cleaning element set forth in claim 27.

Claim 38 should be allowed for the reasons stated in respect to claim 27.

20 In Conclusion, claims 1, 4 - 8, 10, 25 - 38 remain in this application.

Claims 25, 26 and 28 were objected to but deemed allowable if rewritten. Claims 25, 26 and 28 have been rewritten as requested and should now be allowable.

Claims 1, 4 - 8, 10, 27, and 29 - 38 have been amended or resubmitted and allowance is respectfully requested in view of the arguments set forth above.

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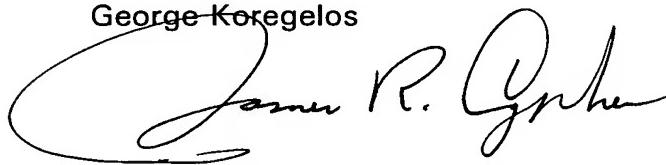
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Respectfully submitted:

George Koregelos



By his attorney: James R. Cypher
Reg. No. 22448
405 14th St.
Oakland, CA 94612
Telephone: (510)-832-4111

Attachments:

- 20 Check no. 10760 for \$55.00
Transmittal Form (1pg)
Petition for Extension of Time Under 37 CFR 1.136(a) (1pg)
Fee Transmittal for FY 2004 (1pg)